

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

D³
glycol dimethacrylate, triethylene glycol dimethacrylate, 1,4-butanediol dimethacrylate, 1,3-butanediol dimethacrylate, divinyl benzene, trimethylol propane trimethacrylate, pentaerythritol tetramethacrylate or mixtures thereof, and

said water-insoluble particulate stabilizer is selected from insoluble metal salts, insoluble metal oxides, oxide, clays, starches, sulfonated cross-linked organic homopolymers, and resinous polymers.

Please cancel claim 24.

REMARKS

The Office Action of May 21, 2001 has been carefully reviewed. Claims 1-5 and 11-25 are pending in the case. Claims 1, 3, 5 and 24 stand rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claims 1, 3, and 22 have been amended and claim 24 canceled to overcome the rejection. Claim 5 was previously amended by a preliminary amendment dated March 1, 2001, and needed no further amendment.

Before addressing the individual references, Applicant would like to underscore the invention in another effort to distinguish over the cited art. Applicant's aim is to develop an improved method for making polymeric particles that are made from a monomer mixture containing at least 20% of a carboxylic acid monomer. An important feature of the invention is a combination of a water-insoluble particulate stabilizer having a size of less than 100 nm in conjunction with an effective amount of water-soluble inorganic salt. An "effective" amount of water-soluble inorganic salt has been found to be about 10-50 weight percent of the aqueous phase (*See*, claim 5). As shown in the examples, this combination works particularly well and this is surprising considering prior art teaching that it is difficult to synthesize carboxylic acid-containing monomers by suspension polymerization (*See*, page 4, lines 7-17 of the specification).

The response now turns to the cited art.

Re: 103(a) rejection over McNeil (US 5,089,295)

McNeil provides no teaching or incentive for the instant invention. McNeil uses an inorganic salt, but fails to mention an amount (col. 6, lines 12-14); although in one embodiment described in col. 9, lines 62-63, sodium nitrite is specified in a concentration from about 500 ppm to about 1500 ppm (that is, 0.05 to about 0.15 wt. %). Further, McNeil fails to teach a carboxylic acid-containing monomer in the examples, although it does recite a long list of monomers, including a few carboxylic acid-containing monomers, which might be useful. Furthermore, McNeil does not teach a water-insoluble particulate stabilizer having a size of less than 100 nm.

The Examiner at page 6, Section 11 of the Action has pointed to McNeil's use of n-butyl methacrylate as giving guidance to the instant invention. Applicant notes that n-butyl methacrylate is not a carboxylic acid containing monomer, but is an ester of a carboxylic acid monomer. In any case, the Examiner is respectfully directed to Example 9 (Comparative) on page 15, and the discussion on Page 16 of the Applicant's specification where it is shown that 5% methacrylic acid and no salt fails to give the problems seen in Comparative Example 3 where more than 20% methacrylic acid and no salt is used. Thus, it is shown that the problem to be solved in the present invention occurs only when the monomer mixture comprises more than 20% of a carboxylic acid containing monomer. Furthermore, in Comparative Example 6 where more than 20% methacrylic acid and only 5% of inorganic salt is used, it is shown that low salt concentrations are ineffective. Applicant has disclosed what is needed to overcome the art recognized unique problem with carboxylic acid containing monomers and this solution was neither taught nor given guidance by McNeil. The rejection should be withdrawn.

Re: 102(b)/103(a) rejection over Utsumi et al. (US 5,002,847)

Utsumi et al. is also deficient in that there is no mention of the problems associated with suspension polymerization of monomer mixtures comprising more than 20% of a carboxylic acid containing monomer. There is no guidance to use of a carboxylic acid containing monomer—only a long list of monomers at col. 3, line 50-col 4, line 26. Further, this reference does not teach a combination of a water-insoluble particulate stabilizer having a size of less than 100 nm in conjunction with an effective amount of water-soluble inorganic salt. The examples in Utsumi et al. do not use carboxylic acid containing monomers in any concentration, and therefore do not anticipate the present invention.

Utsumi et al. also fails to destroy novelty/nonobviousness of the present invention and should be withdrawn.

Re: 102(e)/103(a) rejection over Kamiyama et al. (US 6,140,394)

Kamiyama et al. clearly does not have in mind the problem Applicant is seeking to overcome with respect to carboxylic acid monomers. In col. 6, lines 58-61, the reference lists several monomers, yet makes no mention of carboxylic acid monomers. Another list at col. 10, lines 1-26, includes only two carboxylic acid monomers (acrylic acid and methacrylic acid) in the list of about 50 monomers, but without any particular attention to them. In any case, all examples of that invention use styrene and butyl acrylate, neither of which is a carboxylic acid monomer.

Furthermore, while Kamiyama et al. includes two salts at col. 9, lines 60-61, these salts are merely suggested as optional stabilizer aids. It is also noteworthy that no specific amount is taught nor is the benefit from including these salts mentioned.

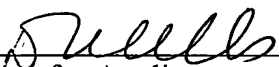
Kamiyama et al. does not teach the present invention, a combination of a water-insoluble particulate stabilizer having a size of less than 100 nm in conjunction with an effective amount of water-soluble inorganic salt as an improved method for making polymeric particles that are made from a

monomer mixture containing at least 20% of a carboxylic acid monomer, nor make it obvious. The rejection should be withdrawn.

The claims of the application are now believed to be in condition for allowance and such allowance is respectfully requested. The Examiner is cordially invited to telephone the undersigned at the number below with any questions or comments.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,



Attorney for Applicants
Registration No. 34,278

Doreen M. Wells/f-d
Rochester, NY 14650
Telephone: (716) 588-2405
Facsimile: (716) 477-1148

Version With Markings To Show Changes Made

In the claims:

1. (Thrice Amended) A process for making polymeric particles comprising:

polymerizing ethylenically unsaturated monomers as a dispersed phase suspended in an aqueous phase,

wherein the ethylenically unsaturated monomers comprise at least one monomer A and at least one monomer B, wherein monomer A is a water soluble ethylenically unsaturated monomer containing a carboxylic acid group and monomer B is a water-insoluble ethylenically unsaturated monomer,

said aqueous phase containing a water-insoluble particulate stabilizer having a size of less than 100 nm and an effective amount of water-soluble inorganic salt to allow formation of stable monomer droplets in the aqueous phase, said monomer droplets comprising at least 20% of said carboxylic acid containing monomer A.

3. (Amended) The process according to claim 1, wherein the carboxylic acid containing monomer is selected from the group consisting of an acrylic acid and a methacrylic acid.

22. (Twice Amended) The process according to claim 1, wherein said water-soluble inorganic salt is aluminum nitrate, aluminum sulfate, ammonium chloride, ammonium nitrate, ammonium sulfate, barium nitrate, borax, calcium chloride, calcium nitrate, calcium sulfate, diammonium sulfate, disodium phosphate, magnesium chloride, magnesium nitrate, magnesium sulfate, potassium chloride, sodium acetate, sodium carbonate, sodium chloride, sodium metaborate, sodium nitrate, sodium sulfate, trisodium phosphate, zinc chloride, zinc nitrate, or zinc sulfate;

said monomer A is acrylic acid, methacrylic acid, ethacrylic acid, itaconic acid, maleic acid, fumaric acid, monomethyl itaconate, monoethyl itaconate,

monobutyl itaconate, monomethyl maleate, monoethyl maleate, monobutyl maleate, or citraconic acid;

said monomer B is methyl methacrylate, ethyl methacrylate, butyl methacrylate, ethyl acrylate, butyl acrylate, hexyl acrylate, n-octyl acrylate, lauryl methacrylate, 2-ethylhexyl methacrylate, nonyl acrylate, benzyl methacrylate, 2-hydroxyethyl acrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, acrylonitrile, methacrylonitrile, acrylamide, methacrylamide, vinyl acetate, vinyl propionate, vinylidene chloride, vinyl chloride, styrene, t-butyl styrene, ethyl vinyl benzene, vinyl toluene, allyl methacrylate, allyl acrylate, butenyl acrylate, undecenyl acrylate, undecenyl methacrylate, vinyl acrylate, vinyl methacrylate, butadiene, isoprene, ethylene glycol diacrylate, ethylene glycol dimethacrylate, triethylene glycol dimethacrylate, 1,4-butanediol dimethacrylate, 1,3-butanediol dimethacrylate, divinyl benzene, trimethylol propane trimethacrylate, pentaerythritol tetramethacrylate or mixtures thereof;

and

said water-insoluble particulate stabilizer is selected from insoluble metal salts, insoluble metal oxides, oxide, clays, starches, sulfonated cross-linked organic homopolymers, and resinous polymers.

Claim 24 is cancelled.